

REMARKS

Claims 1-3, 7 and 9-13 are pending in this application. By this Amendment, claims 4-6 and 8 are canceled and claims 1 and 9-11 are amended. Support for the amendments to claims 1 and 9-11 can be found in the specification as filed, in particular, at page 5, lines 4-6; page 5, lines 12-13; page 7, lines 8-10; page 9, line 20 - page 11, line 12; page 15, lines 17-21; page 18, lines 15-17; and in claims 1 and 9-11 as originally filed. No new matter is added. In view of the foregoing amendments and the following remarks, reconsideration and allowance are respectfully requested.

I. Rejection Under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claim 10 under 35 U.S.C. §112, second paragraph. While Applicants do not necessarily agree with this rejection, claim 10 is amended to more clearly claim the subject matter therein. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

II. Rejections Under 35 U.S.C. §102(b)

A. Claims 1-9 and 11-13

The Office Action rejects claims 1-9 and 11-13 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 4,779,962 to Nishimura et al. ("Nishimura"). Applicants respectfully traverse the rejection with respect to claims 1-3, 7, 9 and 11-13; claims 4-6 and 8 having been canceled herein.

Independent claims 1 and 11 each set forth, in pertinent part, a "polymer gel composition comprising a liquid and a non-ionic polymer gel containing a charging agent that changes its volume by absorbing or releasing liquid in accordance with an imposed electric field." Claims 2, 3, 7 and 9 depend from claim 1 and incorporate all of the limitations of claim 1. Claims 12 and 13 depend from claim 11 and include all of the limitations of claim 11.

The Office Action takes the position that Nishimura teaches all of the features of independent claims 1 and 11 and their dependent claims 2, 3, 7, 9, 12 and 13, because Nishimura teaches optical devices comprising a polymer that absorbs and releases liquid when acted upon by an electric field. Applicant respectfully disagrees.

Nishimura discloses a liquid-absorbable and -releaseable polymer that changes volume by absorption or release of a liquid in response to the application or removal of an electric field. *See* Nishimura, col. 1, lines 42-47; col. 2, lines 26-31. Specifically, Nishimura discloses that such polymers include electrically chargeable polymers including a cross-linkable monomer and an acrylamide derivative as the main component. *See* Nishimura, col. 2, lines 32-59. That is, the polymers, and thus the polymer gels, disclosed by Nishimura are ionic in nature. *Id.*

In contrast, claims 1 and 11 require that a non-ionic polymer gel contains a charging agent; that is, the polymer gel includes a non-ionic polymer that forms the gel and a charging agent. The non-ionic polymer gel of the claims, unlike the chargeable polymers of Nishimura, does not contain dissociated ionic radicals in the polymer chain. *See* Specification, page 9, lines 20-26. Because Nishimura discloses electrically chargeable, ionic polymer gels including a charging agent (*see* Nishimura, Examples) but not non-ionic charged polymer gels including a charging agent, as set forth in claims 1 and 11, Applicants respectfully submit that Nishimura does not teach all of the elements of independent claims 1 and 11, or their dependent claims.

For at least these reasons, Applicants respectfully submit that claims 1-3, 7, 9 and 11-13 are patentable over Nishimura. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection.

B. Claims 1-13

The Office Action rejects claims 1-13 under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,287,485 to Akashi et al. ("Akashi "). Applicants respectfully traverse the rejection with respect to claims 1-3, 7 and 9-13, claims 4-6 and 8 having been canceled herein.

Independent claims 1 and 11 are as set forth above. Claims 2, 3, 7, 9 and 10 depend from claim 1 and incorporate all of the limitations of claim 1. Claims 12 and 13 depend from claim 11 and include all of the limitations of claim 11.

The Office Action takes the position that Akashi teaches all of the features of independent claims 1 and 11 and their dependent claims 2, 3, 7, 9, 10, 12 and 13, because Akashi teaches optical devices comprising a polymer that absorbs and releases liquid when acted upon by an electric field. Applicant respectfully disagrees.

Akashi discloses a ionic and non-ionic liquid-absorbable and -releaseable polymers that change volume by absorption or release of a liquid in response to the application or removal of an external stimulus, such as heat or an electric field. *See* Akashi, col. 4, lines 50-66. Specifically, Akashi discloses that ionic polymers that absorb and release liquids in response to stimuli from pH changes, application of an electric field, electrically induced oxidation reduction reactions and light, and Akashi discloses non-ionic polymers that absorb and release liquids in response to stimuli from heat. *See* Akashi, col. 5, lines 52 - col. 7, line 38.

In contrast, claims 1 and 11 require that a non-ionic polymer gel contains a charging agent; that is, the polymer gel includes a non-ionic polymer that forms the gel and a charging agent. The non-ionic polymer gel of the claims, unlike the non-ionic polymers disclosed in Akashi, contains a charging agent and absorbs and desorbs liquid in response to an electric field. The non-ionic polymer gels of Akashi are only disclosed as adsorbing and releasing

liquid in response to heat. *See* Akashi, col. 7, lines 1-28. The only polymer gels disclosed by Akashi as absorbing and releasing liquids in response to an electric field or other electrically induced stimuli are ionic polymers. *See* Akashi, col. 5, line 52 - col. 6, line 67. Because Akashi does not disclose non-ionic polymer gels including a charging agent, as set forth in claims 1 and 11, Applicants respectfully submit that Akashi does not teach all of the elements of independent claims 1 and 11, or their dependent claims.

For at least these reasons, Applicants respectfully submit that claims 1-3, 7 and 9-13 are patentable over Akashi. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-3, 7 and 9-13 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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